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17 June 1991
Date

James H. Greco
Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

CHRIS BUHR et al.

Serial No.: 07/652,978

Group Art Unit: 187-184

Filing Date: 8 February 1991

Examiner: Unknown

Title: METHYLENE PHOSPHONATE
OLIGONUCLEOTIDE ANALOGS
AND NUCLEOSIDES

INFORMATION DISCLOSURE

STATEMENT UNDER 37 CFR §1.97

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JUN 24 1991

The Honorable Commissioner of
Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

The information listed below may be material to the examination of the above-identified application. Copies of the information and completed PTO-1449 forms are submitted herewith. The Examiner is requested to make this information of official record in the application. The information includes:

Albrecht et al., (1970) J. Am. Chem. Soc. 92:5511-5513, which is directed to 3'-deoxy-3'-(dihydroxyphosphinylmethyl) nucleotides;

Breaker et al., (1990) Nucleic Acids Res. 18:3085-3086, which is directed to a ribo oligonucleotide 10-mer consisting of 5'-methylene phosphonate, ApA(pCH₂A)₈, which was prepared enzymatically using polynucleotide phosphorylase;

Cozzzone et al., (1983) FEBS Lett. 155:55-60, which is directed to a study of complexes of nuclease with calcium and pdTp in order to determine the conformational changes involved in the binding of calcium and nucleic acid inhibitors;

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Jones et al., (1968) J. Amer. Chem. Soc. 90:5337-5338, which is directed to the synthesis of 6'-deoxyhomonucleoside-6'-phosphonic acids;

Jones et al., (1970) J. Amer. Chem. Soc. 92:5510-5511, which is directed to the synthesis of ribo 5'-methylene phosphonate dimers UpCH₂U and UpCH₂A;

Morr et al., United States Patent 4,689,407 (25 August 1987), which is directed to 2'-deoxy-3'-phosphonylmethyl nucleosides;

PCT WO 84/04748 (6 December 1984), which is directed to the preparation of phosphonic acid analogs of natural and synthetic nucleoside phosphates and their use as antiviral agents; and

PCT WO 89/12061 (14 December 1989), which is directed to pyrimidine nucleosides and intermediates which can be used in therapy for infections caused by viruses requiring reverse transcriptase for replication.

The summaries above contain what the undersigned believes to be the salient aspects of the cited references. These summaries are not intended to be a comprehensive statement of the relevance of the references to the subject invention. Accordingly, the references may contain information not mentioned in the summaries that the Examiner might consider material and the Examiner is thus urged to review the references and to draw his or her own conclusions as to their materiality and relevancy.

Applicants would appreciate the Examiner's initialling and returning the Form PTO-1449, indicating that the references have indeed been considered and made of record herein.

This Information Disclosure Statement under 37 CFR §1.97 is not to be construed as a representation that: (i) a search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the above information constitutes prior art to the subject invention.

Respectfully submitted,
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